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INSTITUTE

ADVISORY DEPARTMENT
OF THE IMPERIAL COLLEGE OF
TROPICAL AGRICULTURE

REPORT

OF THE

AGRICULTURAL DEPARTMENT

DOMINICA

1938.

ISSUED BY THE IMPERIAL COLLEGE OF TROPICAL AGRICULTURE

1939.

[Price Sixpence.]

PRINTED AT THE BULLETIN OFFICE, ROSEAU, DOMINICA, B. W. I.

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LETTER OF TRANSMITTAL.

C.A. 667/36.

31ST MAY 1939.

SIR.

I have the honour to transmit the report on the work of the Agricultural Department of Dominica for the year 1938.

2. Agricultural operations, crop production and the transport of produce were all adversely affected by a year of extreme weather conditions. Very dry conditions in April and May caused serious fruit shedding and exceptionally wet conditions from June to September made cultural operations difficult or at times even impossible. Transport conditions were frequently rendered more difficult than usual by flooding, damage to bridges and minor landslides.

3. Although the quantity of agricultural produce exported in 1938 showed an increase over that of the previous year, the total export value of agricultural produce was slightly less than the corresponding value in 1937 This is accounted for by the further decline in the market prices obtained for the more important exports.

4. The upward trend in the production of limes which has been taking place in areas re-established in recent years with budded plants was maintained, an increase in production of about 20% being obtained in 1938. The decline however in the market value of some of the chief products of the lime cannot but have serious repercussions on the agricultural community and on the entire Presidency, and the situation thus created urgently calls for full and frank co-operation between lime producers in all the British Caribbean Colonies in the marketing of their produce.

5. There was evidence of further increased production of bananas during the year, but the higher standard of fruit demanded and the consequent more rigid selection practised by the Canadian Banana Co. offset the increased production, the total number of bunches purchased by the Company being almost identical with that of the previous year. Much work of an educational nature yet remains to be done in the cultural treatment and handling of bananas to ensure acceptance by the Company of a high percentage of stems, but difficulties of transport continue to be an important limiting factor in the further expansion of the industry.

6. Efforts to control Panama disease of bananas were intensified, but heavily infected abandoned areas remain intact in certain districts to serve as an inevitable source of re-infection to producing areas. The Agricultural Department is taking all possible measures to prevent or at least retard the spread of the Cercospora leaf spot disease, the existence of which in the Island cannot be regarded otherwise than as a serious menace to the future development of the industry.

7. Oranges, grapefruit, avocado pears and mangoes were among the more important of the minor export fruit crops. The dry season in April and May caused very appreciable fruit shedding and thus reacted unfavourably on production. Severe competition resulting in low prices in the Canadian and Bermudan markets leaves a very small margin of profit for the grower.

8. The moderate success of the coconut industry was mainly due to the continuation of a contract for shipment of nuts to Canada at a price considerably better than the equivalent quotation for copra. Total exports of both nuts and copra were greater than in the previous year, but copra prices were again at a very low level.

9. Of the smaller industries, bay oil and bay rum have risen to the position of greatest importance, the total export value of these products amounting to £4,200. Much interest continues to be taken in vanilla and exports are likely to increase in the near future. The position of the small tobacco industry also showed some improvement.

10. A table is included in the report setting forth the quantities and values of foodstuffs imported for human consumption. Locally grown foodstuffs are usually abundant and cheap, but careful consideration is being given by the Department to the possibilities of replacing at least a portion of the imported foodstuffs by locally grown products.

11. The usual interesting account of the work in the Botanic Gardens and the Experiment Station is given in the report. The Gardens and the Station were maintainedin excellent condition and the investigations in progress will in time furnish further useful information for practical application by the planting community. Special note should be taken of the value of the leguminous plant *Tephrosia candida* as a cover-cropping plant in citrus orchards. It has proved to be extremely effective in affording temporary protection from wind, for enriching the soil and for the control of soil erosion

12. The distribution of economic plants from departmental nurseries was somewhat curtailed by abnormally heavy rains during June to September. The majority of plants distributed were budded Washington Navel oranges and limes. Two-thirds of the number were supplied to small holders and peasant cultivators.

13. The training of pupils in plant nursery work and modern agricultural practice continues to be one of the major duties of the staff of the Department. The object of the training is to enable the pupils to return to their holdings better fiitted to cultivate their land to advantage.

14. During the year an important step was taken in the appointment of a Peasants' Adviser, whose time is exclusively devoted to the improvement of peasant agriculture and the extension of peasant's industries. The duties of the banana inspectors were also modified so as to make more general use of their services in the improvement of peasant agricultural work.

15. It is gratifying to record the formation of a Dominica Lime Growers Association and of the Northern District Fruit Growers Association. The formation of these Associations registers an advance towards the manifestation of that spirit of general co-operation among growers which is so essential for their welfare and progress.

16. The staff of the Department again experienced frequent changes and interruptions. The Agricultural Superintendent was absent from the Department until October 22nd. Mr. W. E. Bassett was transferred to Montserrat on March 2nd, and Mr. W.R.E. Nanton acted as a temporary Junior Agricultural Assistant from March to October. Much extra work and responsibility fell in consequence on Mr. H.B. Pidduck, who acted as Agricultural Superintendent for nearly ten months of the year, and he and his subordinate staff deserve congratulation for carrying on the work of the Department in a satisfactory manner under very considerable difficulties.

I have the honour to be,

Sir,

Your obedient servant,

C.C. SKEETE,

Acting Commissioner of Agriculture.

His Honour,

The Administrator,

DOMINICA, B.W.I.

AGRICULTURAL DEPARTMENT,
DOMINICA, B.W I.
9TH. MAY, 1939.

No. 195.

SIR,

I have the honour to submit the Annual Report of the Agricultural Department, Dominica, for the year ended 31st. December, 1938.

I have the honour to be,

Sir,

Your obedient servant,

H.B. PIDDUCK.
Acting Agricultural Superintendent.

The Acting Commissioner of Agriculture,
Advisory Department,
Imperial College of Tropical Agriculture,
TRINIDAD, B.W.I.

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STAFF OF THE

AGRICULTURAL DEPARTMENT, DOMINICA.

F. G. HARCOURT, M.B.E., F.R.H.S.		Agricultural Superintendent and Curator, Botanic Gardens.
H. B. PIDDUCK, N.D.A., N.D.D., (Hons.)		Assistant Agricultural Officer.
W. R. E. NANTON, DIP. AGRIC. (I.C.T.A.)		Temporary Junior Assistant Agricultural Officer (to 30th October)
L. A. ROBERTS	.. ..	Clerk.
G. J. STEDMAN	.. ..	Peasants' Adviser (from 1st
	.. ..	September)
C. M. ALEXANDER	.. ..	Foreman (to 11th June)
H. C. BURTON	.. ..	Foreman (from 12th June)

GOVERNMENT FRUIT FARM, COPT HALL.

W. E. BASSETT		Manager (to 2nd March)
W. R. E. NANTON	.. ..	,, (to 30th October)
H. B. PIDDUCK	.. ..	,, (to 31st December)
A. C. WINSTON, Junior.	.. ..	Foreman.

GOVERNMENT MARKETING DEPOT & COLD STORAGE.

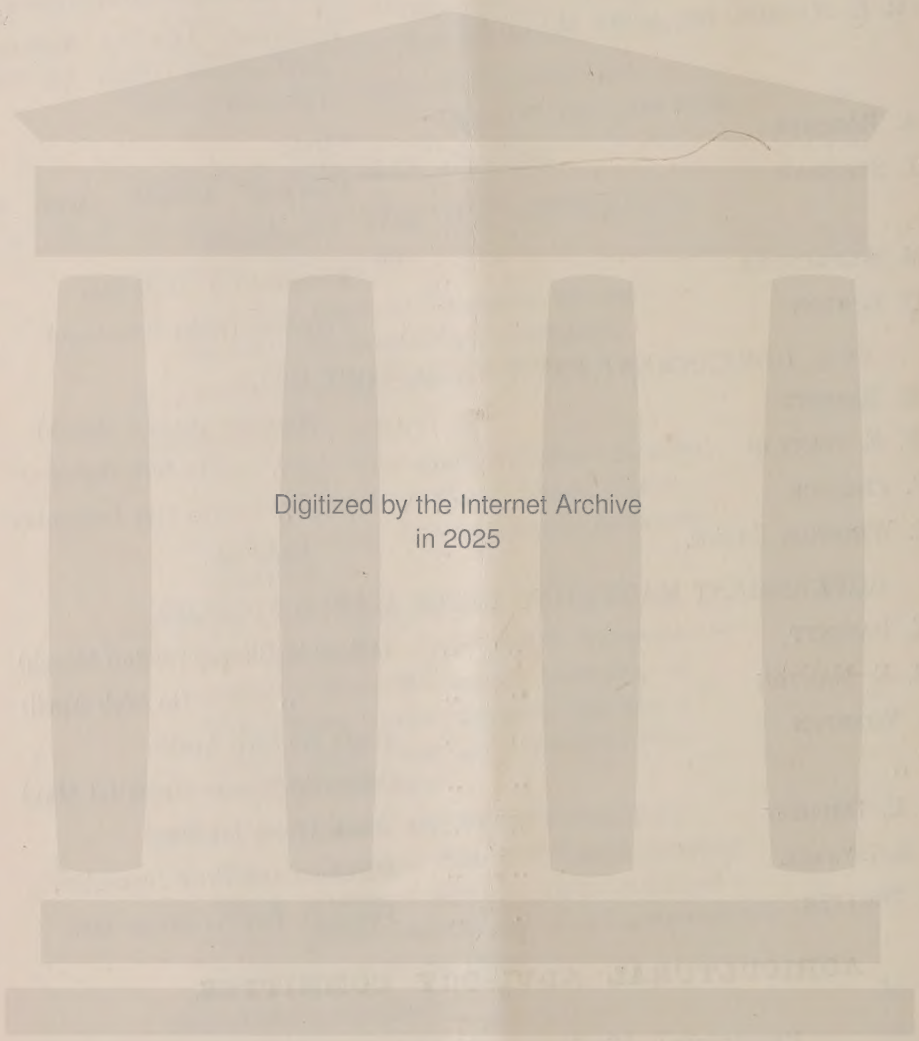
W. E. BASSETT	.. ..	Officer-in-Charge (to 2nd March)
W. R. E. NANTON	.. ..	,, (to 30th April)
G. A. WINSTON	.. ..	Clerk (to 30th April)
,,	.. ..	Officer-in-Charge (from 1st May)
F. P. E. DUPIGNY	.. ..	Clerk (from 1st May)
J. J. MCDOWELL	.. ..	Foreman and Fruit Inspector.
E. A. TROTTER	.. ..	Foreman Engine Driver etc.

AGRICULTURAL ADVISORY COMMITTEE.

PRESIDENT: His Honour The Administrator

MEMBERS: The Agricultural Superintendent
Capt. G. F. Ashpitel, M.C.
P. W. Bellot, Esq.
A. S. Burleigh, Esq.
C. J. L. Dupigny, Esq.
W. F. Harrison, Esq.
N. K. Lockhart, Esq. M.B.E.
P. A. Rolle, Esq.
Hon. H. D. Shillingford
I. N. Shillingford, Esq.

SECRETARY: The Assistant Agricultural Officer.



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ANNUAL REPORT OF THE AGRICULTURAL DEPARTMENT, DOMINICA.

FOR THE YEAR ENDED 31st DECEMBER, 1938.

SECTION I.

AGRICULTURE IN THE PRESIDENCY.

1. WEATHER CONDITIONS.

DURING the first quarter of the year weather conditions were on the whole normal. From the middle of April to the end of May, however, the dry season was exceptionally severe, the intense heat seriously affecting all crops and causing in particular a very heavy shedding of young citrus fruits.

Throughout the rainy season which followed, high winds and excessive downpours of rain were of frequent occurrence and river floods were responsible for heavy damage to roads and bridges. A wetter season has not been experienced for very many years, and in Roseau which usually experiences a comparatively low rainfall, over 60 inches fell from June to August inclusive. Heavy rains were also experienced in September and November, and land-slides were of common occurrence.

The total precipitation for the year recorded at the Botanic Gardens was 107.63 inches which is 32.77 inches in excess of the average for the preceding 20 years.

The usual tabular summaries of meteorological observations are given in Appendix III at the end of this report.

Volcanological Disturbances.—Earth tremors commencing in the last quarter of 1937 increased in frequency during the early part of 1938 and caused a certain amount of anxiety in the Southern and South Eastern districts. Thirteen shocks were felt during the early hours of the 1st. of April but after that very few were experienced. Professor Frank Perret, the eminent volcanologist, visted Dominica in March and spent several days investigating the disturbances. His report which was published in the Dominica Official Gazette of the 2nd. May was to the effect that no real cause existed for alarm. The tremors experienced in 1938 could not be classified as severe, but their frequency was the main cause of anxiety.

2. AGRICULTURAL INDUSTRIES.

(*See also Table of Exports*)

Limes.—There was a further increase in production during the year 1938, and the exports of limes and lime products expressed as fruit totalled 58,982 barrels as compared with 36,422 in the previous year. A part of the increase was due to a carry-over of products from the 1937 crop, however, and it is estimated that actual production was in the neighbourhood of 50,000 barrels including a small carry-over of products prepared for sale in 1939.

There are now only a very few surviving seedling lime trees and the crop is virtually produced by young trees budded mainly on sour orange stock and planted gradually during the past twelve years. The area of such plantings is estimated to be around 1,500 acres, which it is anticipated should eventually yield upwards of 100,000 barrels of fruit in a good year.

For purposes of comparison with earlier years the following table shows the crop shipped annually since 1919, calculated as barrels of fruit and expressed in round numbers :—

Years.	*Barrels.*	*Remarks*
1919/22 (average) ..	422,000	Decreases due to withertip disease.
1923/26 (,,) ..	274,000	
1927/30 (,,) ..	165,000	Decreases due to hurricanes and root diseases.
1931 (actual) ..	68,000	
1932 (,,) ..	48,000	
1933 (,,) ..	36,000	
1934 (,,) ..	27,000	
1935 (,,) ..	28,000	Increase due to young budded trees.
1936 (,,) ..	37,000	
1937 (,,) ..	36,000	Produce not all shipped.
1938 (,,) ..	59,000	

These figures do not necessarily represent annual production as there is often an appreciable carry-over of products at the end of a calendar year. At present production is largely in the hands of estate owners and little extension in this direction is anticipated, but the peasantry are now tending to give more serious attention to the planting of budded limes, which for a time they were apt to regard with suspicion.

Although the year saw an increase in production due to the coming into bearing of new plantings and also the fact that the trees were still carrying a large quantity of crop in January, there was a downward trend in the prices of two of the major products, namely, distilled oil and green limes, on account of over-production elsewhere, particularly in Mexico. The future of the industry is in fact causing producers grave concern, for although practically 80% more oil was disposed of as compared with 1937, the total export value was only about 40% higher. In the case of green limes, not only was the demand smaller, but returns were also disproportionately low.

The market for raw lime juice remained steady and quantities and values were well maintained. Ecquelled oil, lime juice cordial and pickled limes were again of comparatively minor importance and were also rather low in price. The market for concentrated lime juice, formerly the major product of the industry, was purely nominal and only a negligible quantity was exported. The quantities and estimated f.o.b. values of lime products shipped during the past five years are given along with those of other products in the table of exports.

The following table shows the quantity of the chief products calculated as barrels of fruit and actually exported during the past five years :—

Product.	*Barrels of Fruit.*				
	1934.	*1935.*	*1936.*	*1937.*	*1938.*
Distilled Lime Oil ..	18,129	20,961	26,517	24,606	46,989
Ecquelled Lime Oil ..	1,960	1,120	2.800	88	464
"Oils in Solution" ..	3,120	1,890	3,813	7,003	7,707
Green Limes	3,790	4,035	3,555	4,450	3,789
Pickled Limes	94	207	140	275	33
	27,093	28,213	36,825	36,422	58,982

1 barrel of green limes averages 160 lbs. net weight.

The conversion table is as follows:—

Ecquelled Oils (lbs.) multiplied by 8 equals Barrels of fruit ecquelled.

Total distilled oil (lbs.), minus total ecquelled oil (lbs.), multiplied by 3 equals Barrels of fruit unecquelled.

Oils (lbs.) in solution in raw lime juice multiplied by $3\frac{1}{3}$ equals Barrels of fruit exported as raw juice.

Bananas. Since April 1934 the Dominica Banana Association has been under contract with the Canadian Banana Co. Ltd. for the sale of all marketable Gros Michel bananas of seven hands and upwards at fixed f.o.b. prices based on 58 cents per count bunch. Two years ago these prices were increased by a bonus of 4 cents and 3 cents on 9-hand and 8-hand bunches respectively, and the contract was extended until April 1944.

This steady and assured market has been the means of converting a small industry formerly carried on mainly for local and inter-island consumption into one of considerable importance. Exports in 1933 amounted to 22,000 bunches valued at £889 as compared with 140,297 bunches in the current year valued at over £12,000. This quantity includes 61,433 bunches, mostly seven hands, short-shipped owing to the contractors being unwilling to ship the full number of bunches purchased. The corresponding figures in 1937 were 142,463 bunches, including 27,651 bunches short-shipped, but in that year the export standard was not so rigid as at present and it is estimated that there has in fact been an increase in actual production.

There are several factors militating against expansion of this industry, notable amongst which are difficulties of inland communication and transport, the high standard now required by the contractors, the small margin of profit accruing to growers whose lands are far distant from ports of shipment and the spread of Panama Disease. Nevertheless development has occurred in the Northern District resulting from the call of the Canadian National steamers at Portsmouth and the reconstruction of the Portsmouth-Hatton Garden Road two years ago. The Public Works Department commenced the extension of this road towards Concord during the year, and continued the work of re-opening and improving roads and peasants' tracks. Much of this work was negatived however by torrential rains, with consequent landslides and damages to communications. Inclement weather also reacted on production.

Work on the control of Panama Disease was continued by the Agricultural Department, details of which will be found under "Pests and Diseases".

Adverse factors are receiving the close attention of the Government and of the Dominica Banana Association and every effort is being made locally to foster the industry and build it up on sound lines for the benefit of the producer. The Association continues to manage the affairs of the industry and has again done much valuable work, especially in the regulation of the local purchase of fruit and its safe transport, selection and stowage on board.

Other Fruits.—The trade in other fruits, of which the chief ones are oranges, grapefruit, avocadoes and mangoes, is mainly with Canada, Bermuda and Barbados, in that order, and the total quantity exported amounted to 27,556 packages valued at £10,920 f.o.b. against 26,723 packages value at £12,126 in 1937. In addition to a decline in the production of citrus and mangoes due to wholesale shedding of young fruit during the dry season, markets showed a weakening tendency. Washington Navel oranges from Dominica, however, continued to attract much interest abroad and again fetched the highest market prices. Increases were registered for avocado pears, but prices were not comparable with last year's. Even the inter-island trade, which is principally carried on by hucksters with oranges packed in barrels, although increasing slightly in volume, realised lower returns.

As fruit for consignment to distant markets is packed, and a large proportion shipped, by the Government Marketing Depot, the review of the operations of that organisation in Appendix II serves to indicate in detail the present position of the fruit export trade other than in limes shipped to U.S.A. and bananas to Canada.

Coconuts.—Recent increases in shipments of coconuts were again maintained and the exports of copra were more than doubled. Assuming that it takes about 5,500 small and culled nuts to produce 1 ton of copra, exports of both products were equivalent to 1,673,976 nuts valued at £4,400 f.o.b., of which slightly less than one-third were marketed as such, the balance representing copra.

While there is a small huckster trade with the inter-island markets in coconuts, the majority were shipped to Canada under contract at a price considerably better than the equivalent quotations for copra, since Dominica coconuts have a reputation for an unusually high percentage of meat. Contract shipments were made co-operatively by growers in the Northern District, where the cultivations mainly occur. The formation of a local association to include the whole island, with the possibility of affiliation to the Trinidad Coconut Growers' Association, is under consideration.

Cocoa.—Returns for this commodity were very low and the local market price varied between 1¼d. and 1½d. per lb. during the greater part of the year, with a slight upward tendency in December, when, however, the quantity available for sale was small owing to the ill effects of humid conditions during the flowering period and the incidence of Phytophthera pod rot during ripening. The low prices in fact discouraged growers, most of whom have never been completely able to resuscitate their cultivations since the 1930 hurricane.

The island now produces on an average only about 3,000 cwts. of raw cocoa annually, the figure for the past year being well above average on account of a carry-over from the previous year.

Bay Oil. Interest in this commodity, considering that prices were barely remunerative may largely be explained by the fact that the collection of leaves from wild or semi-wild trees is undertaken by the peasantry, particularly in the Eastern District where, with the exception of vanilla, little exportable wealth is produced. Dominica is the foremost British exporter of bay oil and quantities disposed of in 1938 were considerably higher than in any recent year.

A local firm continues to engage in the manufacture of bay rum of excellent quality. Exports and local sales are small but increasing.

Vanilla.—The crop was not quite as good as in the previous year and prices realised were lower, but the industry again provided a useful source of revenue to the peasantry, who are being encouraged to extend their cultivations. Much of the production occurs in semi-abandoned cocoa, which has the advantage of preventing complete lack of attention to that crop. Export figures were 7,504 lbs. of cured beans valued at £5,755.

Rum.—Dominica rum is the direct product of the juice of the sugar cane and cannot therefore readily compete with that produced from by-products of the sugar factories in neighbouring islands, to which it was formerly exported in quantity. Exports in 1938 totalled only 5,535 gallons valued at £697 and as the growing of sugar cane is largely in the hands of peasants they, along with the distillers, have been badly hit by the steady decline in exports. There is also a local market for rum and syrup, but supplies far exceeded demand and prices yielded very poor returns to the grower.

Tobacco.—This is a comparatively recent industry engaged in by one large estate, which is still more or less in the stage of experimenting and gradually building up a useful export and local trade. Pipe tobacco, cigars and cigarettes are made.

Vetiver and Derris.—Attempts made to develop a trade in these products have so far proved unsuccessful. Details of investigations by the Imperial Institute on trial shipments were made in last year's report. In the former case, prices were the chief deterrent. Attempts are being made to obtain an improved Derris variety of the standard required by the trade.

Local Food Production.—Land for gardens is generally plentiful and food crops, chiefly starchy roots such as sweet potatoes, yams, tanias, etc., are easily grown. There is usually a surplus, but very occasionally severe hurricanes or protracted dry seasons create a temporary shortage. Bananas have been unusually abundant during the past two years owing to short-shipments and heavy rejections under the export contract already referred to.

Green vegetables and pulses might be grown on a larger scale and the number of livestock is relatively small. In both cases, the peasantry prefer to sell in the open market rather than consume any quantity themselves. This is also to some extent true of poultry products and milk. The surplus of crude cane syrup made primarily for conversion into rum is consumed locally by the poorer classes. Rum is the only alcoholic beverage consumed in quantity by all classes. Native cocoa is in some demand. During the mango and breadfruit seasons, importations of flour decrease considerably. Other fruits are also eaten in fair quantity, notably avocadoes and oranges, while coconuts are in considerable demand. The only cereal grown is maize, but the wet climate in most parts of the island makes large scale production unprofitable.

To compensate for the shortage of livestock, fish is usually plentiful on the leeward coast where the greatest concentration of population occurs, but salt fish is nevertheless imported in quantity. Fishing on the windward coast is usually fraught with danger owing to the prevalence of rough seas.

3. PRINCIPAL FOODSTUFFS IMPORTED. 1934 1938.

		1934		1935		1936		1937		1938	
		Quantity	*Value* £	*Quantity*	*Value* £	*Quantity*	*Value* £	*Quantity*	*Value* £	*Quantity*	*Value* £
Fish	lbs.	362,420	4,720	355,427	4,501	351,267	3,725	364,772	4,584	386,551	4,061
Meat	,,	31,689	606	25,293	528	24,977	563	24,676	531	21,909	456
Tinned Foods	,,	8,016	422	7,129	321	7,937	446	7,579	374	7,200	316
Sugar	,,	936,111	5,515	990,204	5,675	1,081,332	5,371	999,547	5,018	991,264	5,235
Flour	bags of 98 lbs.	23,113	13,144	22,341	12,244	20,360	10,962	17,060	11,574	19,754	10,487
Oils, Edible	gals.	—	3,200	20,208	3,446	20,058	3,279	20,730	3,808	21,585	2,964
Potatoes	lbs.	59,715	249	55,511	187	42,600	3,234	48,543	230	54,043	219
Rice	,,	305,296	1,737	288,207	1,585	300,980	1,553	294,084	1,614	373,149	1,830
Fats	,,	122,649	3,379	124,491	3,692	128,771	3,639	144,480	3,506	126,578	3,272

TABLE OF EXPORTS FROM DOMINICA.

4. EXPORTS FROM

	1934.		1935.	
	Quantity.	F.O.B. Value. £	Quantity.	F.O.B. Value. £
Lime Products:				
Concentrated Juice ...	7,462 gals.	273	3,372 gals.	184
Raw Juice	74,908 ,,	4,523	48,074 ,,	2,002
Lime Juice Cordial ...	113 ,,	28	—	—
Distilled Oil	6,288 lbs.	6,418	7,127 lbs.	7,443
Ecuelled Oil	245 ,,	393	140 ,,	186
Oils in Solution ..	936 ,,	952	567 ,,	589
Green Limes	3,790 brls.	4,598	4,035 brls.	6,123
Pickled Limes	94 ,,	117	207 ,,	474
Other Fruits and Allied Products:				
Oranges	9,651 crates	4,324	10,746 crates	5,773
Orange Oil	482 lbs.	98	1,131 lbs.	235
Grapefruit	3,167 crates	1,403	5,386 crates	2,596
Grapefruit Juice ..			329 gals.	31
Bananas	37,850 bunches	3,253	71,527 bunches	5,780
Mangoes	4,084 crates	1,225	3,462 crates	1,363
Avocado Pears... ...	4,344 ,,	838	3,726 ,,	744
Miscellaneous		81		224
Cocoa Products:				
Cocoa, Raw	324,333 lbs.	2,983	344,156 lbs.	3,459
Cocoa, Prepared ...	2,087 ,,	26	1,032 ,,	15
Coconut Products:				
Copra	247,508 lbs.	836	278,793 lbs.	1,066
Coconuts	103,639	249	230,170	452
Sugar Products:				
Rum	17,521 gals.	2,281	10,179 gals	1,428
Bay Products:				
Bay Oil	14,988 lbs.	2,206	16,474 lbs.	2,421
Bay Rum	549 gals.	104	516 gals.	92
Spices:				
Vanilla	797 lbs.	109	609 lbs.	153
Nutmegs		6		6
Ginger		4		9
Other Products:				
Coffee	1,553 lbs.	53	859 lbs.	22
Vegetables		115		35
Farine		30		14
Hides and Skins ...		7		1
Leather, Unmanufac/d		42		63
Turtle Shells				26
Baskets		5		11
Tobacco, Cigars & Cigarettes	13,252 lbs.	1,109	6,568 lbs.	495
Miscellaneous		80		352
Forest Products:				
Hardwood	108,466 ft.	965	95,407 ft.	537
Firewood	95 cords	34	46 cords	10
Canoe Shells		32	7	7
Shingles		3		2
Charcoal		77		12
Locally made boats ...		235		456
Value of Local Exports ...		40,115		44,891
Total Re-Exports ...		12,913		12,595
Value of Total Exports ...		£53,028		£57,486

NOTE. 1. Various sized packages are used in the export of fruit and exports given above are converted to the most common pack.

TABLE OF EXPORTS FROM DOMINICA.

DOMINICA — 1934 TO 1938.

1936.		1937		1938.	
Quantity.	F.O.B. Value. £	Quantity.	F.O.B. Value. £	Quantity.	F.O.B. Value £
2,783 gals.	198	1,735 gals.	130	469 gals.	41
88,460 ,,	3,686	110,765 ,,	4,679	125,249 ,,	6,145
—	—	49 ,,	5	300 ,,	45
9,189 lbs.	9,612	8,213 lbs.	7,057	15,721 lbs.	10,408
350 ,,	565	11 ,,	14	58 ,,	61
1,144 ,,	1,156	2,101 ,,	2,208	2,312 ,,	1,494
3,555 brls.	5,518	4,450 brls.	6,643	3,789 brls.	5,288
140 ,,	352	110 ,,	263	33 ,,	60
12,754 crates	7,319	14,021 crates	7,058	10,448 crates	5,340
70 lbs.	14	663 lbs.	159	1,771 lbs.	355
3,038 crates	1,586	4,375 crates	1,871	4,568 crates	1,894
2,143 gals.	199	4,331 gals.	377	755 gals.	66
99,858 bunches	8,391	114,812 bunches	10,658	78,864 bunches	8,115
8,616 crates	3,164	6,056 crates	2,478	8,204 crates	2,366
5,158 ,,	1,171	4,845 ,,	719	6,294 ,,	1,320
	249		535		346
354,578 lbs.	4,168	274,108 lbs.	4,983	391,095 lbs.	3,292
1,161 ,,	25	786 ,,	24	2,166 ,,	32
273,612 lbs.	1,497	116,016 lbs.	773	239,680 lbs.	1,042
719,554	1,991	1,046,312	3,271	1,139,069	3,358
3,090 gals.	424	3,339 gals.	480	5,535 gals.	697
21,282 lbs.	3,229	19,635 lbs.	2,945	28,666 lbs.	3,936
963 gals.	168	714 gals.	147	1,352 gals.	282
4,341 lbs.	868	9,537 lbs.	4,047	7,504 lbs.	3,755
310 ,,	7	—	—	64 ,,	2
2,094 ,,	25		5	3,250 ,,	6
728 lbs.	14	1,509 lbs.	27	1,432 lbs.	24
	56		183		206
	6		27		5
	—		19		18
2,284 lbs.	92		101		123
127 ,,	45		91		62
	10		7		18
3,156 lbs.	200	4,954 lbs.	299	11,693 lbs.	1,047
	200		467		184
131,638 ft.	710	94,451 ft.	454	41,356 ft.	221
192 cords	71	229 cords	74	348 cords	127
14	28		18		16
	—		3		—
	23		15		23
158	632		456		366
	57,669		63,770		62,186
	12,300		9,291		15,387
	£69,969		£73,061		£77,573

2. The areas under various crops cannot be given owing to a preponderance of peasant holdings and numerous small estates having no pure stand of any one crop.

SECTION II.

WORK OF THE DEPARTMENT.

1. THE BOTANIC GARDENS.

Decorative Section.—This section of the Gardens, approximately 30 acres in extent, was maintained in good order and continues to attract a large number of visitors, especially tourists.

During the year ordinary routine work called for particular supervision owing to a severe dry season followed by heavy rains over a long period. Damage caused by high winds also necessitated a good deal of work in the pruning and general care of damaged specimens. The work of replacing old plants with younger specimens was continued, but additions are only possible to a limited extent owing to lack of room and the neccesity of preserving the spacious lawns and grass drives which are an attractive feature of the Gardens.

Cricket pitches were prepared on the main lawn from April to October inclusive, for use by the Cricket Association and the Grammar School.

Attention was given to the care of buildings, walls, fences, roads, gates and garden benches.

The Memorial Park, Library Gardens, Morne Bruce lands and Old Military Cemetery which are attached to the department for upkeep were maintained in as good order as funds permitted.

Economic Section.—This section of the Gardens which adjoins the decorative section is also open to the general public. It is utilised mainly for trials of improved strains of the economic crops grown in the island and of new introductions for possible commercial utilisation in the future. A list of the plots together with their chief contents was given in last year's report.

Ordinary maintenance work was carried out as usual and progress of the recently planted plots is very satisfactory considering the age of the trees and the abnormal weather experienced. In particular, young citrus and cocoa are growing remarkably well and coffee varieties have made better progress. Tonka beans are not making uniform or rapid growth, a similar condition to be observed with those planted for trial on estates. The budded avocado pear collection was adversely affected by excessive rains, two trees of a local variety died and others are still showing ill effects.

New planting made include two plots of *Vanilla planifolia*, one under the full shade of *Hydnocarpus Wightii* and the other with light shade furnished by *Jatropha Curcas*. Small trial plots of cotton, tomatoes and yams were established and vacant land between young plantings of permanent crops temporarily utilised for nursery work.

Cover crops are extensively used and clearly demonstrate their value as a soil protector during wet weather. *Indigofera endecaphyla*, *Tephrosia candida* and *Canavalia ensiformis* were particularly useful in this respect.

The various anti soil erosion methods demonstrated in this section of the gardens were severely tested by the exceptionally heavy rains and the long wet spells experienced, and clearly showed their usefulness. In some plots on very steep land however, the contour drains and sumps were inadequate in depth to cope with the heavy rush of water. One large landslide and several small ones occurred. Plots No. 1 and 21 on the lower lands were often under water for several days at a time. It was therefore necessary to overhaul the entire drainage system of the gardens in order to guard against excessive damage in the event of prolonged torrential rains.

The ordinary maintenance work was carried out satisfactorily and costs and returns were kept for the individual plots of the economic section as a whole. Returns, although

better than for some years, were not as high as was anticipated owing to decreased yields through unfavourable weather and the low prices ruling for products.

Nursery.—A small pot nursery is maintained for the propagation of plants of general or scientific interest, chiefly to meet the needs of the Botanic Gardens and a small surplus was available for sale or for exchange. Seedlings are raised in boxes in glass houses and cuttings in shaded beds, the young plants being transferred to bamboo pots and grown under shade in the pot nursery shelter. Economic plants such as nutmegs, pears and cocoa for local distribution are also raised in this nursery.

Plant and Seed Exchange.—Contributors of planting material included A. H. Green, Esq., L. P. Napier, Esq., A. S. Burleigh, Esq., Rev. Father Remaud, S. Haweis, Esq., of Dominica; Plant Quarantine Station, Trinidad; Commissioner of Agriculture, Trinidad; and the Agricultural Departments of Bermuda, British Guiana, Montserrat and St. Lucia.

Recipients of plants or seeds for trial purposes included A. S. Burleigh, Esq., Hon. H. D. Shillingford, N. K. Lockhart, Esq., M.B.E. and J. E. Fadelle, Esq., of Dominica; the Director, Horticultural Section, Giza, Egypt; C A. Gomez, Esq., Antigua; New York Botanical Gardens; F. G. Walsingham, Esq., Cuba; and the Agricultural Superintendents of St Kitts and St. Lucia.

2. PLANT DISTRIBUTION.

Most unfavourable weather for citrus propagation was experienced during the greater part of the year. A severe dry season extended well into June and seedling stocks and budded plants of all sizes suffered badly except in a few sections of the nurseries where irrigation was possible. A further setback resulted from the abnormal wet weather experienced between July and the end of the year. All nursery plants made but little growth and large numbers of stocks planted out in beds for budding had to be rejected for this reason. Consequently, most of the plants budded for 1938 distribution were not ready until very late and the budding of stocks for disposal in 1939 could only be commenced towards the end of the year, several months later than usual. The Department was in consequence unable to keep pace with the demand for plants and as sour orange trees fruited very much later than usual it will be difficult to speed up supplies for 1939 even if favourable weather is experienced.

In spite of these handicaps, the number of budded citrus distributed was the highest since 1935. Limes and Navel orange plants were most in demand, consequently other varieties were propagated only in relatively small numbers. About two-thirds of the plants were supplied to small holders and peasants, the larger estates mostly needing only small numbers for supply purposes. The prices charged were nominal, namely, 3d. per plant, and half this price to approved peasants.

A number of growers have established small nursery plots on their own land and assistance is given by the Department in supplying them with selected stocks and the services of a propagator to assist in budding. The demand for cocoa, nutmeg, avocado pear and mango plants was also better than in recent years.

A small sugar cane nursery was maintained for the multiplication of three new Barbados varieties introduced through the Plant Quarantine Station, Trinidad. Cuttings will be available for distribution in 1939.

Expenditure on nursery work and plant distribution amounted to £499. 0. 1. and receipts from sale of plants to £193. 14. 8.

The following tables show the variety and numbers of plants annually distributed during the past three years and totals since the commencement of the Plant Distribution Scheme in 1927.

Budded or Grafted Fruit Trees.

Name of Plants.	*Total for 9 years 1927–35*	*Total for 1936.*	*Total for 1937.*	*Total for 1938.*	*Total for 12 years 1927–38.*
Washington Navel Orange	12,337	1,767	1,817	5,516	21,437
*Oranges (Other)	6,530	679	283	586	8,078
†Grapefruit	33,922	796	412	602	35,732
Portugal Orange	254	25	1	29	309
Mandarin	332	25	—	2	359
Sweet Lime	240	21	—	8	269
Tangerine	427	34	—	4	465
West Indian Limes	131,936	3,928	3,327	7,284	146,475
Limes (Other varieties)	5,876	412	—	153	6,441
Lemons	4,089	—	—	60	4,149
Avocado Pears	459	27	91	200	777
Mangoes	1,641	94	73	40	1,848
	198,043	7,808	6.004	14,484	226,339

*Principally "Valencia."
†Chiefly "Marsh."

Other Economic Plants.

Name of Plants.	*Total for 9 years 1927–35.*	*Total for 1936.*	*Total for 1937.*	*Total for 1938.*	*Total for 12 years 1927–38.*
Seedling Limes	41,720	—	—	—	41,720
Sour Orange	31,522	—	1,050	10,304	42,876
Coconuts	33,004	—	—	—	33,004
Cocoa	48,788	647	764	958	51,157
Coffee	131,076	6	12	—	131,094
Seedling Mangoes	256	—	—	—	256
Nutmeg	12,594	1	99	323	13,017
Tobacco	6,382	—	—	—	6,382
Mangosteen	386	—	—	3	389
Seedling Avocado Pears	321	—	—	—	321
Papaw	2,429	—	—	—	2,429
Tannias	31,670	—	—	—	31,670
Camphor	363	—	—	—	363
Black Pepper	1,067	—	—	—	1,067
Onions	54,637	—	—	—	54,637
Bananas	5,508	—	—	—	5,508
Sugar Cane Cuttings	26,643	—	—	—	26,643
‡Miscellaneous	77,093	404	2,353	556	80,406
	505,459	1,058	4,278	12,144	522,939

‡Includes cuttings and plants for cover crop and mulch purposes.

3. EXPERIMENT STATION.

The trial plots of permanent crops, principally limes, are laid out mainly for demonstration purposes and the budded lime trees planted in 1929 and subsequently continue to give good crops for trees of their age. The total yield of fruit in 1938 was 965 barrels from an area of nearly 10½ acres, as compared with 747 barrels in the previous year. This increase was partly due to a big carry-over of fruit from the 1937 crop. The main crop was adversely affected by the shedding of young fruit in the dry season and further reduced by severe attacks of Blossom Blight caused by the withertip fungus, *Gloeosporium Limetticolum*, during the very wet weather which followed.

Two recently planted plots made satisfactory progress and bore a few fruits and one new plot was planted during the year.

There was considerable improvement in the health and condition of trees in the plots recently cover-cropped with *Tephrosia candida* and the area so treated was practically doubled during the year. This legume has proved extemely useful in affording temporary protection from wind, for enriching the soil and for the control of soil erosion. Although the cost of establishing it is somewhat high, weeding expenses are greatly reduced for several years and the loppings provide a satisfactory means of keeping up a supply of humus to the soil. Owing to the resulting improvement of the nitrogen content of the soil, the trees were given twice a year dressings of artificial manures richer in phosphates and potash, namely, in May and June and again in November and December.

As most of the plots are on sloping land, they are contour-drained and lemon grass is planted above the drains in order to minimise the effects of soil wash and form a support for terracing. Very steep hillsides, the sides of the ravine and other sites unsuitable for citrus, are planted in lemon grass and Gliricidia to provide additional supplies of mulch.

Detailed records of costings, returns and manurial treatments are kept for all plots. Such records facilitate economical working and provide useful information as to the cost of lime production. Despite the expenditure associated with experimental work and a drop in lime prices, the receipts for produce sold were in excess of the expenditure on the whole station, and several of the best plots realised a good profit.

Trials of Stocks for Limes.—Plots 1, 2 and 3 are each divided into three sections to provide a triplicate series of rootstock trials for budded limes, the stocks used being rough lemon, grapefruit and sour orange. The trees were planted in 1930 and number 77 in each group of stocks, covering an area of approximately eight-tenths of an acre for each series. The yields recorded to date are as follows :—

Plots 1, 2 & 3. Actual Yields to the nearest Half-Barrel.

Year.	*Rough Lemon 1A, 2A, 3A.*	*Grapefruit. 1B, 2B, 3B.*	*Sour Orange. 1C, 2C. 3C.*	*Totals.*
1932	0½	1	1	2½
1933	6	10	6	22
1934	15½	18½	16	50
1935	48	53	47	148
1936	72½	87	67½	227
1937	62	76½	66	204½
1938	86	82	80½	248½
Total, 7 years	290½	328	284	902½

Old Budded Lime Trees.—Plots 4 and 5 contain limes budded on sour orange stock which are now twenty-six years old. In 1921-22 the combined yield of these plots approximated 241 barrels of fruit per acre, but a gradual reduction in yield followed the appearance of withertip disease in 1922 and damage done to trees by the hurricanes of

1926, 1928 and 1930. The effect of this damage is still evident and most of the trees are showing signs of old age, though yields remain profitable. Plot 5 suffered most but has the advantage of a deeper soil and only a gentle slope. In recent years a few trees which died were replaced, but the young plants are not yet bearing any appreciable quantity of fruit.

The calculated yields per acre for the past seven years in barrels were as follows:—

Plot No.	*1932*	*1933*	*1934*	*1935*	*1936*	*1937*	*1938.*
4	113	79	121	155	147	135	141
5	182	86	123	200	225	208	150

These yields are considerably higher than estate yields from seedling trees in pre-withertip days and indicate the greater productiveness of budded trees

Budded versus Grafted Limes.—Plot No. 6 is divided into two sections, one section containing grafted and the other budded limes, sour orange being the stock used in each case. The trees were planted in 1929 and the grafted trees have consistently given better yields. Their yield in 1938 was at the rate of 164 barrels per acre and from the budded trees 82 barrels per acre as compared with 86 and 51 barrels respectively in 1937.

Other plots of Budded Limes.—Plots 7–11 containing limes on sour orange were planted in 1930-31 and the trees are bearing very good crops for their age. They serve to demonstrate various methods of cultivation as applied to hilly land of varying gradients and with trees at different distances apart. The actual yields in the past five years were 43, 226, 302, 287 and 472 barrels from an area of 5.84 acres, i e. 81 barrels per acre in 1938.

Shade Trials for Limes.—In view of the diversity of opinion concerning the influence of overhead shade in relation to the bearing qualities of lime trees in withertip disease areas, Plot No. 18 was planted in 1936 with limes budded on sour orange stock for observation purposes in this connection. This plot, which has an area of 1.46 acres, is divided into four sections. Two sections are planted with the following shade trees: *Adenanthera pavonina* in 18A and *Peltophorum ferrugineum* and *Cassia Siamea* alternately in 18C and the lime trees in the remaining two sections are being grown without shade for comparison. Both lime and shade trees have made rapid progress, the former having already borne some fruit.

Seedless Limes.—Plot 19 was planted in 1936 with 28 trees each of Bear's Seedless and Tahiti limes, which besides being virtually seedless are highly resistant to withertip. Both varieties have proved shy bearers on sour orange stocks but are reputed to do well on sweet orange, and since the latter is very subject to foot rot in Dominica the plants were raised by top-working the seedless limes on Valencia orange plants budded on sour orange. The young plants were checked by hot, dry weather immediately after planting, but are now making satisfactory growth.

Top-working of Grapefruit Trees with Limes.—This trial was undertaken to ascertain whether the heavy yields of limes on grapefruit stock already referred to can be combined with the resistance of the sour orange stock to root troubles. With this object in view 55 trees raised by top-working limes on seedy grapefruit budded on sour orange were planted in plot 9C in 1936, and the trees have grown well and a few have fruited. During the year the plot was extended by the addition of 10 trees.

Top-working of Lime Trees with Grapefruit.—The grapefruit trees obtained by top-working limes budded on sour orange *in situ* in 1934 bore a fair crop and some trees on rough lemon and grapefruit stock which were similarly treated in 1935–36 have also borne. Plot 8B contains sixteen trees, eight on rough lemon and eight on grapefruit stock and plot 9A, 34 trees, all on sour orange. So far there is no marked form of incompatibility between the lime and the grapefruit and this trial is indicating that the conversion of lime trees into grapefruit trees is practicable should necessity demand.

Grapefruit.—The crop from plots 12A and 12B containing grapefruit varieties planted in 1914–15 was partly shipped to Canada and partly sold locally at an average price of 4/3d. per 100 for the whole crop. The total area of these plots is .54 acres and the yield of saleable fruit averaging 70 per crate was at the rate of 177 crates per acre or about 1.6 crates per tree, a fair yield considering the age of the trees and that many of them are suffering from gummosis.

4. PESTS AND DISEASES.

Panama Disease (*Fusarium cubense*).—This disease continues to be a limiting factor in the production of Gros Michel bananas for export and during the past year weather conditions were particularly favourable to its spread.

The inspection service recommended in 1936 by Dr. Wardlaw of the Imperial College of Tropical Agriculture was continued and seven inspectors operated the chief banana-growing districts. The following table computed from their returns shows the estimated average monthly incidence of the disease in the plots and stools inspected.

District.	*Plots Inspected.*	*Plots Infected.*	*Percentage Infected.*	*Stools Inspected.*	*Stools Infected.*	*Percentage Infected.*
Marigot	46	13	28	7,267	74	1.02
Lasoye	27	8	29	4,110	131	3.18
Portsmouth ..	38	5	13	4,795	39	.81
Colihaut	25	5	20	3,089	34	1.10
St Joseph ..	80	11	13	6,838	45	.65
Roseau	52	18	34	6,258	88	1.10
South & S.E. ..	37	17	45	5,058	171	3.38
ALL DISTRICTS ..	307	78	25	37,165	601	1.61

The corresponding figures for all districts in 1937 were 22% plot infection and 1.16% stool infection. Apart from increases due to natural causes, the figures for the current year were also higher on account of the more thorough eradication measures taken. Prior to May it had been the custom to quarantine plots in which infection exceeded 10%, by forbidding the removal of plants therefrom. It was felt however that this treatment in itself, owing to the difficulty in practice of its enforcement, was not a sufficient safeguard and the inspectors were therefore instructed to continue the destruction of diseased stools after infection had reached 10%, even when the percentage infection greatly exceeded the economic limit. This change in policy necessitated more frequent visits to plots of relatively high infection, thereby increasing the monthly percentages shown in the inspectors' reports. It also proved more expensive in the purchase of the necessary gas oil used to eradicate diseased stools.

Provision was made in the estimates for a continuation of this important work in 1939, and growers are again urged to co-operate with the department and to make fuller use of the inspectors' services for the benefit of the industry, even where the destruction of diseased stools is not economic in the case of a particular plot or plots.

Leaf Spot of Bananas. (*Cercospora musae*).—An outbreak of this disease was discovered in February at one small estate in the southern mountains and infection, although relatively light, is spreading gradually thereon in spite of regular control measures carried out by the department in collaboration with the planter concerned. Propaganda work has been undertaken in order to familiarise growers with the symptoms and the disease has been declared notifiable under existing legislation but no further outbreaks have so far been reported.

Bacterial Wilt (*Bacterium solanacearum*) **& Banana Borer** (*Cosmopolites sordius*) continue to occasion but little concern to the majority of growers, who do not appear to treat these troubles as seriously as they deserve. The inspectors advise on control measures whenever necessary, including the selection of clean planting material.

Withertip Disease (*Gloeosporum limetticolum*) was unusually severe during the wet season and was one of the causes of the lateness of the main lime crop and the scarcity of green limes during the optimum marketing period.

The Lime hybrids raised and selected for high resistance to this disease were induced to fruit in nursery beds. In this way it was possible to eliminate the obviously unsuitable ones and 24 selected hybrids were transplanted in September. None of them appears to approximate sufficiently to the West Indian lime for commercial purposes and further back-crossing with that parent is proposed. The other original parents were the Philippine and Woglum limes respectively. Attempts were also made to obtain a cross with the Persian (Bears' Seedless) lime.

Shedding of Young Lime Fruits.—The shedding of young fruits previously observed only on a small scale increased considerably during the dry season. Specimens sent to the Imperial College of Tropical Agriculture did not yield any causal organism and it was assumed that the cause was probably physiological. Experiments in the control of moisture in the soil and also of the atmosphere round trees badly affected did not conclusively confirm the belief. The experiments are being continued.

Blossom-end Rot of Limes.—This comparatively new trouble was the cause of some loss of crop, and may also be physiological, since no causal organism could be isolated from specimens examined. The symptoms are a soft rot which sets in while the full, semi-ripe fruit is still on the trees, and as the chief period when it was observed was during the main crop, which also coincided with a period of heavy rainfall, it seems probable that excessive moisture may be responsible.

Other Pests and Diseases.—Serious damage due to other pests and diseases was not observed or reported. A small local outbreak of leaf spot on various *Musa* species was identified at the Imperial College of Tropical Agriculture as being due to *Helminthosporium torulosum*.

Visit of Entomologist.—Mr. R.G. Fennah, who is engaged in investigational work in connection mainly with citrus in the Leeward and Windward Islands paid three short visits to Dominica. His work included further observations along the lines reported last year and also investigations in connection with the shedding of young lime fruits and blossom-end rot.

Mr. Fennah's report was circulated to interested parties.

5. AGRICULTURAL INSTRUCTION AND ADVISORY WORK.

Pupils.—The training of pupils recruited mainly from the peasantry continues to be one of the most important duties of the Agricultural Department and owing to the extension of nursery work, their average numbers were further increased from sixteen to eighteen during 1938.

Although much time is spent on propagation work, the object of their training, which is normally of two years' duration, is for them to acquire a broad practical and scientific knowledge of general agriculture suitable to the conditions of the island in order to enable them to return to their holdings better fitted to cultivate their land to advantage. In the case of youths who prove to be above average, an extension of the term of training assists them to qualify as overseers for estates or fill occasional vacancies in the department.

With these aims in view, pupils are given work in all sections of the department where practical agriculture is carried out, namely the Economic Plots, the Experiment Station and the Government Fruit Farm. Field operations in which they assist include clearing land, planting and after-care of crop plants; weeding, cover-cropping, mulching and manuring; draining and fencing; the control of pests and diseases and the reaping and disposal of the chief crops of the island. Preliminary lectures on elementary applied botany, soil science and the composition and reaction of manures, are followed by a course in tropical agriculture as outlined in the 1936 report, applied theory wherever possible being based on actual field work.

Senior pupils were again engaged on special duties involving the supervision of labour, the keeping of costs, returns and experimental records and the compilation of data therefrom. This work gives an economic bias to the training in addition to imparting the necessary agricultural technique and developing a sense of responsibility.

Lectures and demonstrations are given on Friday afternoons and Saturday mornings and at other times when occasion permits by the Assistant Agricultural Officer who, with

the assistance of the Foreman and the Head Pupil, is responsible for discipline and training.

Grammar School Boys —In connection with a theoretical course of crop and soil science given in school, boys of the upper forms of the Grammar School attended at the department fortnightly during school term and were instructed in practical operations. Demonstrations were first given in the experimental plots and were followed by notes in the classroom on the principles underlying the various operations. The syllabus followed was that of the Cambridge Local Examination Syndicate. It is hoped in this way to induce a larger number of boys ultimately to take up agriculture as a career.

Peasant Advisory Work.—The work of the banana inspectors on the control of Panama Disease is referred to under "Pests and Diseases" and occupies a considerable amount of their time. The nature of this work brings them into close contact with the peasantry and opportunity is taken not only to encourage sounder methods of handling and cultivating bananas, but also the general improvement and extension of peasant agriculture, including advice on the selection of sites for and following up of plants supplied.

Particular attention was again given to the planting and care of limes and other citrus and the inspectors were also made available for the top-working of undesirable varieties of citrus on estates and the budding of stocks grown in numerous small private nurseries.

An employee of the department was given a special course of training to fill a vacancy in the inspectorate, and he and three other assistant inspectors received instruction in connection with cotton and tomatoes. The remaining three inspectors also attended headquarters for short refresher courses.

Two of the inspectors were formerly given seniority for the purpose of assisting Senior officers with the supervision of the work in country districts, being stationed respectively in the Northern and Southern sections of the island, each also having a banana district of his own.

Peasants' Adviser. In September, one of the Senior Inspectors was selected for the newly-created appointment of Peasants' Adviser in order to release him from routine banana work and thereby enable him to devote himself exclusively to the extension of peasants' industries and the fostering where possible of new ones.

Prior to commencing his new duties, arrangements were made for him to visit Antigua and Montserrat and obtain first hand information concerning peasants industries in those two Presidencies

General Advisory Work.—The senior officers of the department paid visits to estates and maintained close contact with members of the planting community. Agricultural problems were discussed on the spot and advice was given on cultural and other problems affecting any particular estate. Planters were also accorded interviews at headquarters and given an opportunity of inspecting the demonstration and experimental work of the department.

The thanks of the department are extended to those planters who generously afforded visiting officers their usual kind hospitality and in many instances supplemented existing facilities for travelling.

Estates in receipt of government loans were inspected and reports submitted. The Agricultural Superintendent is a member of the Loans Investigations Committee which meets frequently to advise the Government on matters of policy in connection with loans. Reports were also furnished at the request of the Banana Association in respect of certain properties for which applications had been made for advances for cultivation.

The department continued to work in close collaboration with the Imperial College of Tropical Agriculture, Trinidad, and the Commissioner of Agriculture and members of his staff paid periodical visits to Dominica for the purpose of discussing and advising on local agricultural problems. The usual assistance in the determination of pests and diseases and advice on other matters was also freely given by Officers of the College from time to time.

The Fruit Trade Committee, the Lime Growers' Association and the Agricultural Advisory Committee met as circumstances demanded to consider and make recommendations on matters affecting the fruit and lime export trades and general agricultural policy respectively. On the 14th of December a special meeting of Northern District citrus growers and others interested in the industry was convened by the Agricultural Superin-

tendent to consider the suggested establishment of a Fruit Packing and Cold Storage Depot at Portsmouth and to submit recommendations to Government. The growers present took the opportunity of forming the Northern District Fruit Growers Association in order to work co-operatively for the advancement of the industry in that district. Senior officers of the Agricultural Department were elected ex officio members of the Association.

Royal Commission.—A comprehensive memorandum on matters pertaining to Agriculture, Live Stock, Forestry and Fisheries was prepared for the information of the Moyne Commission due in Dominica in January 1939. The memorandum emphasized the parlous state of agriculture in the island and the fact that there are no livestock and forestry departments. The document was somewhat lacking in accurate statistics, especially in relation to acreage, local foods, numbers of livestock and costs of production, owing to the predominance of peasant cultivators. Specific information relating to selected estates was kindly supplied by the owners, however.

Soil Conservation.—Attention was again directed to the menace of soil erosion and the district officers and education department were requested to collaborate in propaganda work in this connection. Reference is made elsewhere to control work carried out by the department in the Economic Section of the Gardens, the Experiment Station and the Government Fruit Farm. A pamphlet is being prepared for local distribution.

Improvement in the Diet.—Efforts were made to induce the peasantry to grow and consume more meat, milk, eggs and pulses to supplement the large bulk of starchy foods used at present, and also to produce more fruit and green vegetables, both for home use as well as for export.

6. CORRESPONDENCE.

Five hundred and forty-nine letters were dispatched and four hundred and ninety Minute Papers dealt with, in addition to numerous Confidential Minute Papers. Various agricultural and meteorological returns and departmental progress reports were prepared and submitted periodically. Copies of pamphlets and reports on general agriculture were distributed locally to persons interested.

7. LABORATORY.

A small laboratory is maintained for the purpose of the simple examination and analysis of commercial products and during the year the chief tests made were as follows:—

Raw Lime Juice	13
Concentrated Lime Juice	1
Bay Oil	414
Milk	60

8. STAFF NOTES.

The Hon. F.G. HARCOURT, M.B E., Agricultural Superintendent continued to act Commissioner of Montserrat from the 1st. January until the 22nd April, 1938, when he proceeded on overseas leave. Mr. HARCOURT resumed duty as Agricultural Superintendent on his return to Dominica on the 22nd. October.

Mr. H. B. PIDDUCK, Assistant Agricultural Officer, continued to act Agricultural Superintendent in conjunction with his ordinary duties from the 1st. January to the 21st. October. Mr Pidduck also took over the management of the Government Fruit Farm from 30th. October.

Mr. W.E. BASSETT, Officer-in-Charge of the Government Marketing Depot and Manager, Government Fruit Farm, left the department on 2nd. March to take up the appointment of Curator, Montserrat.

Mr. W.R.E. NANTON deputised for Mr. BASSETT from the 2nd. March to the 30th. April. From the 1st. May to the 29th. October, he resumed duty as Temporary Junior Assistant Agricultural Officer, including the supervision of the Government Fruit Farm.

Mr. G.A. WINSTON, who had been seconded to the Treasury Department in 1937, resumed duty as Clerk, Government Marketing Depot on the 25th. April, relieving Mr. R.L. BLANCHARD, acting clerk. On the 1st. May, Mr. WINSTON was appointed Senior Clerk for duty as Manager of the Depot, on which date Mr. F.P.E. DUPIGNY was appointed clerk.

Mr. G.J. STEDMAN, Senior Agricultural Instructor, was appointed Peasants' Adviser on the 1st. September.

Mr. C.M. ALEXANDER, Foreman of the Botanic Gardens, was promoted Agricultural Officer, Class II, St Lucia on the 12th. June and Mr. H.C. BURTON, formerly Senior Banana Inspector, assumed the duties of Foreman from that date.

Mr. D.R. PHILIP was appointed Assistant Banana Inspector on the 2nd. September.

Mr. A.C. Winston, Junior, deputy Foreman, Government Fruit Farm, was confirmed in his appointment on 1st. September.

SECTION III.

FINANCIAL STATEMENT.

Expenditure and Revenue.—Statements of expenditure and revenue with regard to special services are given in the appropriate sections of the report. Expenditure, other than on special services, and the general revenue of the Department were as follows :—

Expenditure.

	£	S.	D.
Personal Emolument	1,254.	12.	1
Contingencies	8.	10.	6
Maintenance of Botanic Gardens	269.	19.	11
Cultivation of Demonstration Plots, &c.	274.	5.	8
Purchase of Special Manures	49.	13.	8
Experiment Station	332.	6.	10
Upkeep of Morne Bruce Lands & Military Cemetry	20.	0.	0
Chemicals & Apparatus	8.	13.	5
Upkeep of Horses & Mules	29.	15.	2
Tools and Equipment	64.	5.	9
Banana Disease Control	523.	18.	11
Agricultural Pupils	199.	9.	0
Transport Allowance, Peasants' Adviser	16.	13.	4
	£3,052.	4.	3

Revenue

Limes	£315.	15.	4
Cocoa	9.	2.	7
Fruit	58.	15.	0
Vegetable Seed	14.	5.	3
Laboratory Receipts	31.	18.	0
Miscellaneous	21.	1.	3
	£450.	17.	5

SECTION IV.

LEGISLATION AFFECTING AGRICULTURE, FORESTRY AND FISHERIES.

A summary of legislation affecting agriculture was included in the annual report for 1936.

The following changes and additions have been made during the past two years, including regulations relating to livestock and fisheries :—

A Proclamation dated 1st. June, 1937, amended the schedules to the Customs Import and Export Tariff Consolidation Ordinance, No. 11 of 1930.

Ordinance No 7. of 1937 amended the Tonnage Dues Ordinance, No 25 of 1925, to include firewood, green vegetables and fresh fruit amongst the exports on which dues are payable.

Statutory Rules & Orders, No 3 of 1937, prohibits absolutely the importation of cotton seed, lint, seed cotton and packages in connection therewith from Cuba, Haiti and Santo Domingo.

Ordinance No. 2 of 1938 repeals sections 14 and 20 of the Banana Ordinance, No. 2 of 1934.

Statutory Rules and Orders, No. 6 of 1938, rescinded Orders in Council prohibiting under section 12 of the Contagious Diseases (Cattle) Act, No. 14 of 1877, the importation of animals from Grenada. Statutory Rules and Orders, No. 7 of 1938, prohibits the importation of stock from Trinidad until further orders.

Ordinance No. 12 of 1938 regulates fishing in the presidency and repeals and consolidates previous legislation in connection therewith. Statutory Rules and Orders made thereunder amplify the provisions of section 4 thereof.

Statutory Rules and Orders, No. 4 of 1938, prohibits the importation of citrus fruit, plants, parts of plants and wrappers or containers attached thereto, from Trinidad and Barbados.

A Proclamation dated the 12th. May, 1938, makes Cercospora Leaf Spot Disease of Bananas notifiable under Ordinance No. 2 of 1927.

To legislation indirectly affecting agriculture should be added Ordinance No. 1 of 1915 which together with Statutory Rules and Orders, No 6 of 1933, regulates the control and disposal of Crown Lands.

APPENDIX I.

Report of the Manager, Government Fruit Farm, Copt Hall.

1. **Staff.**--Mr. W.E. BASSETT continued to manage the farm until the 28th. February when he was succeeded temporarily by Mr. W.R.E. NANTON, from whom the writer took over on the 30th. October in conjunction with his other duties as Assissant Agricultural Officer. The present arrangement provides for the supervision of the farm without any charge for salary.

Mr. A. C. WINSTON, Jr., Deputy Foreman, was confirmed Foreman as from 1st. September.

2. **Progress.**--The citrus trees in all plots made satisfactory development in the first and last quarters of the year, but growth was retarded by drought and later by unusually wet weather in the middle of the year. The crop was adversely affected in quantity and matured late, most of it being sold locally or shipped in November and December when the markets were barely remunerative, particularly for grapefruit. Much of the Valencia orange crop was still immature at the end of the year. Experiments are in progress to determine whether earlier crops can be induced.

3. **General Cultivation.**--The usual routine work was carried out throughout the farms consisting mainly of cutlassing weeds, lopping cover crops and clean weeding the circle, round the citrus trees.

4. **Windbreaks.**--Periodical attention was given to windbreaks. Those recently planted, however, will not afford maximum protection for some years, but the retarding effect of wind is now much less evident than formerly.

5. **Cover Crops.**--Additional belts of *Tephrosia candida* were planted in several plots, and a complete cover of this species was provided in three others. This work is expensive and is being continued gradually as funds permit. There has been a satisfactory response in plots so treated.

6. **Manuring.**--Funds provided for maintenance were barely sufficient for general routine, and in consequence only one general application of artificial manure was made during the year, namely in December. In three plots, experiments with lime and phosphate based on soil analysis carried out by Professor Hardy of the Imperial Collgege of Tropical Agriculture were continued. This is a long term investigation and no striking differences are as yet noticeable. Trees receiving lime, however, show somewhat better increments of growth.

Applications of lemon grass grown on steep hillsides and other sites unsuitable for citrus were made to all plots in order to improve the humus content of the soil, there being no animals kept on the farm.

7. **Drainage.**—Additional drains were made and existing drains kept in good order. Contour drains in one hill-ide plot and silt pits in another were constructed during the year. In most plots soil erosion is largely kept in check by cover crops or natural weed growth.

8. **Seedy Grapefruit.**--Bearing grapefruit trees were tested for seediness and a start was made with the top-working of undesirable trees to the Marsh variety.

9. **Top-working of Oranges.**—Two plots containing orange trees of little commercial value were top-worked to Washington Navel.

10. **Cost Accounts.** Analysis of the cost accounts for the seven years ended 30th. September were prepared by Mr. NANTON. The writer devised a system of allocating revenue plot by plot for the same period.

11. **Planting.** A few backward trees were removed and replaced with well grown nursery stock The area under citrus is now approximately 100 acres.

12. **Expenditure.** *Head VII (2) - A.*

Personal Emoluments	£240.	15.	1
Annuity to Previous Owner	75.	0.	0
Tools and Equipment	4.	16.	10
Estate Development	499.	19.	3
	820.	11.	2
Less part of former Manager's emoluments	43.	0.	0
	£777.	11.	2

13. Receipts for produce sold amounted to £23. 3. 0. Returns for fruit shipped were not all received till after the end of the year and such are not included above.

H.B PIDDUCK,

Assistant Agricultural Officer,
Manager, Government Fruit Farm.

APPENDIX II.

Report of the Officer-in-Charge, Government Fruit Packing and Marketing Depot.

Staff.—In the month of March, Mr. W.E. BASSETT who had been Officer-in-Charge since March 1936 was transferred to Montserrat, Mr. W.R.E. NANTON acted in his place

until Mr. G. A. WINSTON was appointed on the 1st. of May. On the same day Mr. F.P.E. DUPIGNY was appointed clerk.

Work of the Government Marketing Depot.—All fruit exported from Dominica, with the exception of that destined to neighbouring islands, limes shipped to the United States of America and bananas, is required by law to be packed at the Government Fruit Packing and Marketing Depot under the supervision of a Fruit Inspector. A Cold Storage Plant for the precooling of fruit is maintained in conjunction with the packing depot, both of which are under the control of the Agricultural Department. Other facilities include a Citrus Machine which is available for cleaning and sizing all oranges and grapefruit submitted for export.

The Depot undertakes the marketing of fruit for producers, should they desire it and as will be observed from Table 1 considerable use is made of this service.

Quantities and F.O.B. value of fruit packed.—Though the number of crates packed, shows an increase of 2,432 over the 22,750 crates packed in 1937, the estimated f.o.b. value of consignments, based on returns to the Depot, is £463 2. 4 less than the previous year. This is due to a general drop in prices and a decrease of 2,173 crates navel oranges, which commodity bears a comparatively high f.o.b. value.

TABLE I.

Produce.	*Size of Crate in cub. ft.*	*Packed, but not marketed by the Depot.*		*Packed & Marketed by the Depot.*		*Total packed by the Depot.*	
		Quantity.	*Estimated F.O.B. Val.* £. s. d.	*Quantity.*	*Actual F. O. B.* £. s. d.	*Quantity.*	*Estimated F.O.B. Val.* £. s. d.
Oranges ..	2	1004	439 5 0	5724	2504 5 0	6728	2943 10 0
Grapefruit ..	2	1035	310 10 0	3057	917 2 0	4092	1227 12 0
Green Limes ..	¾	4179	1125 18 10	1739	476 17 0	5918	1602 15 10
,, ,, ..	2	626	413 8 7	88	58 2 2	714	471 10 9
Lemons ..	2	1	6 6	261	85 3 10	262	85 10 4
Tangerines	¾	7	14 0	53	5 6 0	60	6 0 0
Avocado pears.	¾	3107	524 6 2	464	78 6 0	3571	602 12 2
Grafted Mangoes ..	¾	1231	210 8 8	137	23 5 4	1368	233 13 0
Ordinary Mangoes ..	2	2219	425 3 4	130	25 1 2	2349	450 4 6
Pumpkins ..	brls.	32	17 4 0	88	47 6 0	120	64 10 0
TOTALS ..	—	13441	3467 5 1	11741	4220 14 6	25182	7687 19 7

N.B.—The values of private shipments packed but not marketed by the Depot (as above) are not known and have been calculated at the same rates as actual depot shipments.

Average Returns and Packing House Costs.—The average returns and Packing House Costs which appear in Table II are based on the shipments made by the Depot during the year, which as usual were all made on a consignment basis.

TABLE II.

Produce.	*Size of crate in cu. ft.*	*Average F. O. B. returns.*	*Average Packing House Costs.*	*Average nett returns to Growers.*
Orange, "Washington Navel"	2	9/4	2/9	6/7
do. "Valencia"	2	7/4	2/6	4/10
do. "Seedling"	2	5/5½	3/4½	2/1
All Oranges	2	8/9	3/7	5/2
Grapefruit, "Marsh"	2	6/8	3/5	3/3
do. "Triumph" ..	2	6/2	3/3	2/11
do. "Foster" ..	2	4/6	3/3	1/3
All Grapefruit	2	6/0	3/7	2/5
Green Limes	¾	5/5	2/2	3/3
Lemons	2	6/6	3/3½	3/2½
Avocado Pears	¾	3/4½	1/6½	1/10
Grafted Mangoes	¾	3/5	1/8	1/9
Ordinary do.	2	3/10½	2/3½	1/7

Oranges.—The end of the 1937-38 crop of Valencia oranges shipped to the Bermuda Market brought returns of about 9/8 per crate. Owing to weather conditions the "Summer Crop" of Navel Oranges was poor both in quantity and sizes with a consequent drop in exports and prices.

Grapefruit.—Prices on the whole were lower this year. This was in a great measure due to competition from California fruit. Shipment of the seeded varieties early in the season did well but had to be discontinued on the advice of our Canadian Agent and the fall in prices.

Green Limes.—Selling Agents reports point to the growth of a highly discriminative element among purchasers which insists on smooth-skinned, clean green fruit of uniform appearance and medium size. Growers have been acquainted with this development. Exports from Texas, Florida and Mexico to the Canadian Market have increased considerably; and in one case about 800% during the last three years. In view of the above, great care must be taken to satisfy market requirements if this competition is to be successfully met.

Shipments made during the year were satisfactory and returns ranged from 46/3 to 15/10 per barrel.

Exports of this product to Bermuda showed an increase over last year. Returns ranged from 9/6 to 8/8 per citrus crate.

Lemons.—These too have suffered from severe competition from California fruit. Returns during the months of June and September ranged from 5/2 to 5/10 per crate but in the latter months of the year the markets were overstocked with California fruit at cheap prices and our Agents were unable to interest the trade.

Avocado Pears.—Increased exports of this item to Bermuda has had the effect of oversupplying the market and resulted in poorer prices. Fair returns were received early in the season, at which time unfortunately orders could not be fulfilled owing to the lateness of the crop.

Ordinary Mangoes. Prices for ordinary mangoes in the Bermuda market were not encouraging and had to be discontinued when two shipments resulted in losses to growers of 1/4 and 11d. per crate.

Grafted Mangoes.—Returns to growers ranged from 2/4 to 1/6 per Tomato lug. Export figures show an increase over previous years. The low prices however, indicate the somewhat limited capacity of the Bermuda market for this class of fruit.

A trial shipment to Montreal was well reported on and yielded a net return of 2/1 per tomato lug.

Pumpkins.—This trade suffered from West Indian competition and increased production in Bermuda. The total number of barrels packed at the Depot was 240 less than the previous year. The average nett return to shippers was .67d. per lb. as compared with .9d. per lb. in 1937.

Finance.—The general Revenue and Expenditure of this branch of the Agricultural Department are shown in the statement appended, which does not however include the cost of electric current, interest and sinking fund.

R.L. BLANCHARD,

Acting Officer-in-Charge,

Government Marketing Depot.

GOVERNMENT FRUIT PACKING AND MARKETING DEPOT AND COLD STORAGE.

STATEMENT OF GENERAL EXPENDITURE AND REVENUE

FOR THE YEAR ENDED 31ST DECEMBER, 1938.

EXPENDITURE.				REVENUE.			
Head XV (1).							
Personal Emoluments ..	£448.	6	4	Sale of Ice	£334.	14	0
Running & Maintenance .	170.	10	4	Cold Storage Rents & Marketing Depot Receipts	428.	17	6
Wages of Staff	94.	1	0	Inspection, Packing House & Overtime Fees ..	364.	18	9
Contingencies	10.	15	2				
Printing & Stationary ..	14.	4	8				
	737.	17	6				
Head VII (2).							
Half of Manager's Salary & House Allowance ..	43.	17	6				
Excess of Revenue over Expenditure	346.	15	3				
	£1,128.	10	3		£1,128.	10	3

F. P. E. DUPIGNY,

Clerk,

Government Marketing Depot.

R. L. BLANCHARD,

Ag. Officer-in-Charge,

Government Marketing Depot.

METEOROLOGICAL SUMMARY, BOTANIC GARDENS, DOMINICA, 1938.

Year. 1938.	PRESSURE. Corrected & reduced to 32° F., M.S.L.				TEMPERATURE.								RELATIVE HUMIDITY.		RAIN-FALL.
	Highest.	Lowest.	Means.		Absolute.		Mean Values.						Means.		Amount.
					Max.	Min.	Max.	Min.	Dry Bulb.		Wet Bulb.				
	—	—	9 a.m.	3 p.m.	—	—	—	—	9 a.m.	3 p.m.	9 a.m	3 p.m.	9 a.m.	3 p.m.	
	IN.	IN.	IN.	IN.	°F	°F	°F	°F	°F	°F	°F	°F	%	%	IN.
January ...	30.08	29.86	30.00	29.92	86	65	83	68	76	82	71	73	77	62	6.73
February ...	30.07	29.90	30.02	29.95	86	62	83	67	76	81	71	72	70	60	1.43
March ...	30.08	29.90	30.01	29.93	88	65	85	68	78	83	72	73	71	59	2.69
April ...	30.05	29.80	29.98	29.90	89	65	86	69	81	84	73	73	64	55	.72
May ...	30.02	29.80	29.97	29.91	91	69	88	73	79	86	75	76	65	61	1.41
June ...	30.06	29.92	30.01	29.98	90	71	87	72	81	85	76	77	74	68	19.56
July ...	30.04	29.90	29.99	29.95	89	70	87	72	81	86	76	78	79	65	13.44
August ...	30.02	29.80	29.92	29.87	91	71	88	73	82	87	78	79	81	68	27.92
September ...	30.00	29.83	29.94	29.88	93	71	89	73	83	87	77	79	74	66	10.77
October ...	29.99	29.80	29.91	29.83	92	70	90	73	83	88	78	80	75	66	4.48
November ...	29.96	29.79	29.89	29.83	89	68	86	71	80	83	76	77	81	71	12 34
December ...	30.08	29.78	29.90	29.85	88	66	85	71	78	84	74	76	78	64	6.14
Year ...	30.04	29.84	29.96	29.90	89	68	86	71	80	85	75	76	74	64	107.63

Highest Barometer Reading (corrected):	30.08 in.	on 17th January, 29th March & 31st December.
Lowest ,, ,, ,,	29.78 ,,	,, 12th December.
Highest maximum temperature:	93°F	,, 15th September.
Lowest minimum ,,	62°F	,, 18th February.
Greatest rainfall in 24 hours:	8.55 in.	,, 28th June

RAINFALL AT THE BOTANIC GARDENS, DOMINICA, 1919 1938.

	1919.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	1937.	1938.	Monthly Mean Rainfall.
January ...	2·42	7·54	6·82	6·50	3·82	6·25	7·88	3·68	5·50	6·60	5·18	10·65	1·47	5·47	7·30	4·81	2·37	3·46	13·24	6·73	6·08
February ..	1·52	4·76	1·02	4·30	2·30	1·90	1·95	2·46	4·50	4·25	3·13	2·07	1·05	1·57	2·13	1·70	1·59	2·50	3·40	1·43	2·47
March ...	·69	3·80	4·46	2·80	3·46	·66	3·50	·96	5·37	6·30	7·36	3·89	·59	1·56	2·37	3·36	6·90	.82	1·34	2·69	3·12
April ...	2·36	·22	3·06	2·26	3·77	1·46	·40	2·77	4·67	4·16	1·27	5·01	·51	2·33	2·03	2·91	1·45	3.04	2·61	·72	2·35
May ...	4·60	2·38	1·54	2·64	·13	3·18	2·76	2·44	6·69	2·25	2·80	2·21	1·70	5·07	2·26	3·82	4·27	2·34	1·48	1.41	2·79
June ...	3·88	3·48	1·96	7·14	4·18	4·42	5·80	5·76	15·03	6·68	10·87	7·32	9·98	10·72	7·05	2·59	5·04	6·47	6·57	19·56	7·22
July ...	12·64	12·08	11·18	6·08	8·20	13·64	6·23	10·14	9·61	6·58	13·13	7·90	18·45	8·05	12·30	9·54	13·47	18·48	5·60	13·44	10·83
August ...	9·64	8·76	9·30	9·26	11·44	11·28	13·88	10·10	4·65	12·80	12·55	6·76	17·44	7·23	7·94	7·61	8·87	10·38	6·20	27·92	10·70
September.	7·06	8·60	6·28	10·68	4·28	4·88	9·12	4·12	6·20	8·10	5·63	14·66	13·51	6·13	11.51	4·08	12·93	11·14	4·40	10·77	8·20
October ...	7·50	12·60	9·41	2·68	9·84	10·98	12·55	5·86	8·84	4·35	12·19	3·15	9·71	6·72	9·26	3·89	5·43	7·65	3·74	4·48	7·54
November.	9·02	4·62	2·44	3·00	1·06	6·86	9·60	7·54	8·70	7·93	14·39	5·51	11·90	13·83	11.04	5·58	3·39	12·14	20·85	12·34	8·58
December .	6·70	5·62	4·22	6·90	1·92	13·65	2·02	3·75	1·37	5·38	8·48	3·66	7·56	5·21	7·03	9·46	6·24	10·84	5·43	6·14	6·07
Total ...	68·03	74·46	61·72	64·24	54·40	79·16	75·69	59·58	81·13	75·38	96·98	72·79	93·87	73·89	82·22	59·35	71·95	89·26	74·86	107·63	- -

Average year = 75·82 inches.

RAINFALL RETURNS, DOMINICA, 1938.

Stations.		Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Totals.
1. Batalie	L ...	1.17	.82	.61	.00	.99	13.16	7.52	15.05	5.57	2.03	8.57	3.41	58.90
2. Botanic Gardens	L ...	6.73	1.43	2.69	.72	1.41	19.56	13.44	27.92	10.77	4.48	12.34	6.14	107.63
3. Bath	L ...	5.18	1.82	2.88	.72	.90	20.99	11.48	18.82	16.15	3.03	12.62	6.55	101.14
4. Blenheim	LAS.	4.88	8.23	5.57	5.09	2.90	15.00	12 33	24.12	11.44	13.53	24.18	12.46	139.73
5. Canefield	L ...	4.81	1.18	1.79	.29	1.49	21.73	11.93	20.90	9.89	3.74	10.41	4.33	92.49
6. Clark Hall	L ...	5.34	3.03	4.62	1.44	.18	22.23	15.83	26.06	9.85	7.02	12.51	11.88	119.99
7. Copt Hall	L ...	11.20	3.63	6.58	2.48	2.96	27.25	12.96	37.04	13.29	9.27	19.02	13.06	158.74
8. Fond Hunt	I ...	17.77	18.24	14.22	9.09	6.00	17.58	25.76	39.70	17.45	10.34	27.65	20.21	224.01
9. Governor	W ...	8.26	12.43	4.82	5.74	4.00	16.63	15.56	28.28	11.53	13.44	44.09	15.90	180.68
10. Hampstead	LAS.	5.25	3.35	2.35	4.21	1.92	12.63	12.11	22.08	9.42	9.53	22.37	8.15	113.37
11. Morne Bruce	L ...	7.57	1.81	3.12	.81	1.72	20.19	14.69	28.77	11.00	5.12	12.83	6.67	114.30
12. Moore Park	I. ...	5.99	6.87	4.95	1.13	4.25	31.16	6.50	26.98	5.55	10.43	25.05	12.37	141.23
13. Picard	L ...	6.82	3.63	3.40	—	5.32	20.51	12.73	21.18	10.01	5.58	13.23	6.69	109.10
14. Pte. Mulâtre	W ...	3.85	7.28	3.20	6.62	3.52	14.24	11.01	21.60	11.16	23.32	20.15	14.12	140.07
15. Rosalie	W ...	4.95	5.75	3.36	4.10	6.14	15.37	9.64	20.45	15.28	16.86	33.62	15.05	150.57
16. Ridgefield	L ...	11.50	5.47	5.65	2.19	2.76	24.55	18.76	27.40	19.36	8.10	22.00	13 92	161.66
17. Shawford	I ...	18.17	9.57	2.15	5.16	4.51	40.67	34.70	59.99	32.74	9.27	39.18	38.88	294.99
18. Sherwood	I ...	15.20	10.15	9.95	4.75	9.45	27.90	27.90	42.90	19.70	11.80	23.75	22.00	227.45
19. Stowe	W ...	5.51	5.77	4.17	4.28	3.70	18.55	12.86	21.00	13.32	14.49	32.57	13.76	149.98

Mean Rainfall 19 Stations ... ... 146.63 inches.
, ,, 9 Leeward Stations... ... 117.77 ,,
,, ,, 4 Windward ,, ... 155.32 ,,
,, ,, 4 Inland ,, ... 221.92 ,,
,, ,, 2 Lasoye ,, ... 126.55 ,,